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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/665,880

09/19/2003

Alexander Gidon

CAD 362

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22862 7590 06/27/2008

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3475 EDISON WAY, SUITE L  
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EXAMINER

DINH, PAUL

ART UNIT

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2825

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/665,880	<b>Applicant(s)</b> GIDON ET AL.	
	<b>Examiner</b> Paul Dinh	<b>Art Unit</b> 2825	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 4,5 and 7-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 is/are allowed.
- 6) ☒ Claim(s) 4-5, 7-10, 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This FINAL office action is a response to the amendment and remarks filed on 6/16/06.  
Claims 4-5, 7-12 are pending.

#### ***Claim Rejections - 35 USC § 112***

*The following is a quotation of the second paragraph of 35 U.S.C. 112:*  
*The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.*

Claims 4-5, 7-9, 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4 and dependencies are rejected because “clocks all having a period of substantially zero” in the limitation “inserting dummy flip- flops clocked by clocks all having a period of substantially zero” is indefinite as to how a clock (or clocks) can have a period of substantially zero.

**The Applicant argues that** “In the logical context of a circuit described by a hardware description language, this operation is sufficiently clear, as this step contributes to an overall logical operation, but would not make sense in a final, physical implementation” (remark page 8 lines 1-5).

This explanation does not overcome the indefinite and the examiner finds the argument irrelevant to the claimed “clocks all having a period of substantially zero”. Therefore the explanation regarding the claimed “clocks all having a period of substantially zero” is unacceptable and thus **the 112 rejection are maintained and made FINAL.**

#### ***Claim Rejections - 35 USC § 103***

*The following is a quotation of 35 U.S.C. 103(a), which forms the basis for all obviousness rejections, set forth in this Office action:*

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have

been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-5, 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grundmann (USP 7299425) in view of one or more of: McElvain (USP 20070288871), Duggirala (USP 6766501), and Cooke (US 20060230369)

Grundmann discloses:

(Claim 4) Replacing flip-flops in said digital circuit with negative delay elements (fig 3A, 4CD, 5); breaking any feedback paths in the digital circuit by inserting dummy flip-flops clocked by clocks all having a period of substantially zero (fig 3-4, insofar the limitation is understood)

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laberge (USP 6647541) in view of one or more of: McElvain (USP 20070288871), Duggirala (USP 6766501), and Cooke (US 20060230369)

Laberge discloses: replacing flip-flops in a digital circuit with negative delay elements; where some of the negative delay elements comprise buffers (fig 4 shows buffers (tree) with delay associated with negative delay elements), said buffers having a load capacitance representing an average or weighted-average load capacitance taken over inputs of all gates and flip-flop D pins in a target technology library

Thus, Grundmann and Laberge discloses substantially all the elements in claims 4, 10 except HDL

McElvain discloses HDL in par 3, Duggirala discloses HDL in col 6, and Cooke discloses HDL in par 39.

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize HDL simply because one or more of the following reasons:

HDL is a standard language developed to describe digital circuits to aid in the design and simulation of complex digital circuits (McElvain par 3)

HDL is well-known in logic/digital design/procedures (Hakewill col 6)

HDL is conventional in logic/digital design (Cooke par 39)

(Claims 5, 7-9) buffers having a delay -T, where T is a delay equal to a FF clock period less a predetermined FF delay (fig 3-4), avoiding breaking feed forward path (fig 3-5); predetermined optimization goals at each gate are substantially the same as they would be if registers were already optimally distributed (fig 1-4), T set to clock period of a FF being replaced (fig 3-4).

***Allowable Subject Matter***

Claim 11 is allowed.

Claim 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

**Correspondence Information**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Dinh whose telephone number is 571-272-1890. If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Jack Chiang can

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be reached on 571-272-7483. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Paul Dinh/

Primary Examiner, Art Unit 2825